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## Embodiment and Prosthetics

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### Overview

Artificial, or prosthetic, limbs are considered a key element in the rehabilitation of people with acquired limb loss and those with congenital limb deformity (1). The rehabilitative process, whereby people with limb loss, absence, or deficiency are fitted with and trained to use a prosthesis, has formed a substantial area of research. These technological artifacts are often able to restore some of the functions, as well as offering some aesthetic approximation, of an anatomical limb. However, while prosthesis use is seen by many as necessary for the restoration of near normal appearance, for functional independence, as well as substantially repairing their damaged body image, the embodied experience of prosthesis use is little explored.

This chapter offers an overview of a largely neglected area of research: the embodied experience of prosthesis use. This includes a consideration of the concepts and theories of embodiment, along with an examination of how people's ideas about prosthetic limbs contribute to their experience of them. The chapter begins with an overview of research relating to the phenomenological experience of using an artificial limb, and then presents the personal, social, and cultural meanings that surround such use and impact on its embodied experience. This chapter argues that a consideration of these interrelated areas enables a deeper understanding of rehabilitation following limb loss or following congenital limb deficiency, and consequently for the use of artificial limbs in this process.

### The Phenomenological Embodiment of Prosthesis Use

Phenomenological researchers have presented analyses of how certain technologies and artifacts can mediate both perceptual and motor skills and become incorporated into the phenomenal boundaries of the body. For instance, the experience of the blind person using a long cane has been discussed by a number of phenomenologists (2–5). Merleau-Ponty (4) argued that the cane is an extension of the realm of the senses, with touch being transferred from the hand to the end point of the cane; the cane becomes an intimate prosthetic device that withdraws into the sensorium of the body. This incorporation of the tool into the form and praxis of the body is what Leder (6) refers to as a phenomenological osmosis, whereby the body allows instruments to melt into it (7).

An analysis such as the above applied to prosthesis use would be useful for two broad reasons. First, the rehabilitation community working with prosthesis users often talks of the need to transform the prosthetic limb from an inert supplement or an extracorporeal structure into a corporeal one (8). Therefore, it would be informative to know if such an experience could be achieved by the prosthesis user. Second, if it is achievable, it could aid identification, for rehabilitative purposes, of the process and steps necessary to achieve this experience.

A number of researchers have proposed that an artificial limb may become “part of” the user. Fraser (9) observed and compared the movement patterns in a proficient user of an upper artificial

limb with those of the other, anatomical limb. She argued that if an artificial limb were to become part of the user, then it might be expected that the movement patterns of the prosthetic and anatomical limb would be similar. Fraser, in fact, found evidence of this. However, Fraser's criterion for a prosthesis becoming part of a user was based on observable behavior and measurable performance, rather than the prosthesis user's own report of phenomenal experience. Additionally, one can question the assumption that it is necessary for a limb and prosthesis to have similar movement patterns in order for the latter to feel embodied. Indeed, the phenomenological work referred to earlier regarding tools and the blind person's long cane would suggest that artifacts that have different properties than the anatomy to which they are appended can nevertheless be embodied.

Anecdotal as well as empirical evidence of prosthesis adaptation, a process in which prosthesis users overestimate the length of their residual limb as the result of prosthesis use, has been reported by McDonnell et al. (10,11). These researchers proposed that long-term exposure to discordant forms of sensory information (the visual, proprioceptive, and tactile aspects of this prosthesis use) result in this phenomenon. Inasmuch as prosthesis use leads to the overestimation of the length of residual limbs, it may be argued that the prosthesis has become part of the user's body image.

Recent research (12) has centered on the phenomenological boundaries of prosthesis user's bodies. Artificial limb users are predominantly people who have had a limb amputated (in contrast to being born with a missing limb). One pervasive aspect of such users' experience is a phantom limb, whereby they feel as if the anatomical limb is still present in its usual place. This experience has been found often to play a large part in enabling the incorporation of a prosthetic into the phenomenal body of participants, such as when the prosthetic limb is experienced as part of the phenomenal body, with the phantom and the prosthetic interlacing into a phenomenal corporeal structure:

"It is certainly nice to still feel the [phantom] foot. Primarily, it facilitates the use of the prosthesis because I don't feel as anything is really missing. So my prosthesis is 'natural'" (12, p. 969).

In the above example the prosthetic and phantom limb phenomena entwine their different properties

(the "legness" of the phantom, the solidity and reality of the prosthetic limb), which anchors (a "connectedness-to-the ground") people with amputations to their habitual world. However, it is important to note that for some people the phantom limb does not have a close correspondence to their amputated limb. It may only be experienced in part (e.g., a phantom hand with no forearm); it may be experienced as lighter and more hollow; it may be contorted into an anatomically impossible position; and it may also be experienced as much shorter than their amputated limb.

While prosthesis users may report that the limb feels "part of" them, a phantom limb is not always necessary for such an experience. Murray (12) found people with congenital limb absence gave similar accounts. One female interviewee with congenital absence of her right forearm, stated:

"It's [the prosthesis] a part of me now, that's the only way I can describe it. To me it's as if, though I've not got my lower arm, it's as though I've got it and it's a part of me now. It's as though I've got two hands, two arms" (12, p. 970).

Such reports reflect the possibility that under certain circumstances a prosthesis can be transformed from an extracorporeal structure into a corporeal one (8). Just as McDonnell and colleagues (10,11) report that users overestimate the length of their residual limb as the result of prosthesis use, prosthesis users themselves often provide accounts of how their prosthesis is incorporated into phenomenal body structures.

Churcher (13) has discussed the process of learning a new task, with special attention to the use of prostheses. He provides the example of learning to use a pencil, whereby new physical and informational properties of the hand need to be internalized to adequately use a pencil as an extension of the body. The phenomenon experienced by some artificial limb users, whereby they are able to lose a focal awareness of their prosthesis and use it as a replacement of their anatomical limb, is demonstrative of the process described by Churcher: the new physical and informational properties that accompany prosthesis use are incorporated and allow the prosthesis to be used as a practical extension of the body.

The incorporation of an artificial limb into the phenomenal boundaries of the body enable some

users to achieve corporeal knowledge, that is, a form of phenomenological understanding that is usually achieved with an anatomical limb. For instance, Murray (12) reports how one woman with congenital limb deficiency recounted an attempt earlier in her life to learn how to play the piano. On one particular week she had forgotten to take her left prosthetic hand with her, and her tutor asked her to “just do the right hand, but think where the left hand would be.” As she explains, “I could not think left handed.”

“And when I had to think left hand, and play the piano right hand on my lesson, I gave up. Because the man didn’t understand, I couldn’t think about the left hand, because it’s not there. I’ve never had it and I can’t think about the left hand. I’ve no experience. And there’s an old Chinese proverb, ‘I do and I understand, I don’t do and I don’t understand.’” (12, p. 969).

She then explained a more recent occasion when she had had similar difficulties:

“We were doing exercises in the pool. ... You were having to put your right hand to your left knee, and your left hand to your right knee. I was sort of going like this [flails arms], for ages, almost disoriented by limb. There’s one limb not there, I can’t even think left hand.” (12, p. 969).

However, it became evident that the prosthetic hand was able to provide her with knowledge that is usually corporeal:

“With the prosthesis, the bit I do understand is holding the hymn book, that [the prosthesis] can hold a hymn book, now I know what it feels like to hold a hymn book in the left hand. Can you understand that?” (12, p. 969).

In this manner, a prosthetic limb is able to imbue a form of corporeal knowledge to users. Using a prosthetic becomes a form of knowing—an understanding that is achieved practically and corporeally. The above participant at once describes the limits and potentiality of a prosthetic hand. While she is unable to perform complex motor acts with the prosthesis, relatively simple activities, such as holding a hymnbook, are made “knowable” to her by virtue of the prosthesis.

While the above form of experience was recounted by a number of Murray’s (12) participants, it is all the more interesting that this was often the experience of participants who had congenital limb absence, and could describe the

experience of not only having an artificial limb redesign the natural topography of their body, but that it could also imbue the implicit knowledge, which is usually embodied corporeally.

Not all prosthesis users experience the types of bodily incorporation of an artificial limb described above. Some describe their prostheses merely as practical aids (12). Many people with amputations, for instance, do not have the physical strength (particularly if they are elderly) or a residual limb that affords such an outcome. However, the recent identification that the experience of a prosthesis as part of the phenomenal body is a common occurrence raises the possibility that many people who could benefit from prosthesis use simply do not persevere to the point where these benefits could be realized.

The accounts of prosthesis users suggest that the training of persons to use artificial limbs should emphasize the long-term process involved, for instance, in gaining effective balance and walking gait with the aid of a prosthesis. The accounts of Murray’s (12) successful prosthesis users demonstrate that the use of an artificial limb is not intuitive to begin with, nor does such use initially feel natural. However, prosthesis users stress the process of adjustment to using a prosthesis, in which there was a natural switch and subconscious compensation to changes in weight distribution and body balance following amputation and subsequent prosthesis use. One implication of such experience is that, whereas previous research has found that the increased physical effort associated with prosthesis use (14) as well as discomfort experienced when wearing a prosthesis (15) often leads to rejection of artificial limbs, the accounts of successful prosthesis users suggest that these experiences may be overcome with perseverance. That is, the often-cited reasons for the rejection of prostheses are frequently part of the initial experiences of successful prosthesis users also who, unlike those who reject their prosthesis, persist with using their artificial limbs to find that these negative experiences give way to a more natural pre-reflective use of their artificial limbs.

While the personal accounts of the perceptual experience of prosthesis use provided by people with amputation and congenital limb absence provide important insights into the manner in which prosthesis use may become embodied, it

is also important to stress that such experience does not take place in a social vacuum. Rather, the physical and technological metamorphosis of prosthesis users takes place within social and historical contexts, where meanings of such prosthesis use are made and remade within both social interaction and the dominant views of wider society (16). These meanings can be expected to impact upon the experience of prosthesis use, and upon the likelihood that such use will be continued. Therefore, it must be borne in mind that prosthesis use cannot be fully understood without a consideration of the cultural milieu in which such experiences are embedded.

A clue to the understandings and meanings that using a prosthetic limb has for the person concerned can be found in a reflection of the centrality of the body in personal experience (16). Dise-Lewis (17) notes that, in Western cultures, the loss of a right hand means that people are no longer able to shake hands in the socially accepted manner, whereas the loss of the left hand prevents them from wearing their wedding ring on the correct hand. A prosthetic limb, then, may be able to restore some of these rudimentary customs in which the body is routinely and socially deployed (Fig. 9.1).

The meaning of the social body (18) in relation to prosthesis use has been examined by Murray (16). Such meanings can be illustrated by the comments made by one female interviewee regarding the use of her prosthetic hand. This participant discussed how her prosthesis integrated her into an important social ritual, one of adolescent courtship. What is important here is not



FIGURE 9.1. An image of a cosmetic glove wearing a wedding ring and watch as used in promotional material by Realistic Prosthetics Limited. (From Realistic Prosthetics Limited, with permission.)

that the prosthesis facilitated romantic or sexual relationships—indeed the respondent remarks she “usually had three boyfriends at a time”—but, rather that it enabled participation in a social ritual, one in which the conventional use of the body was of central importance.

“The reason I wanted it [the prosthesis] when I was sixteen—remember I was a teenager, very popular, I usually had three boyfriends at a time [laughs]. ‘Sweet sixteen and never been kissed,’ I’d been kissing boys since I was thirteen. To me kissing was absolutely lovely. I always had lots of boyfriends. But when I was dancing it was nice to have a hand to put on their shoulders. It was a cosmetic reason really, but I was pleased to have it.” (16, p. 431).

The social normalizing role of prostheses is found to be important for many users, both people with congenital limb absence and people who had experienced amputation. As can be seen from the above extract, a prosthetic hand not only enabled participation in an important social ritual (one of adolescent courtship), but, more specifically, the dancing that accompanied this activity required conventional uses of the body, for example the hand on the shoulder, which would be impossible to achieve without the prosthesis.

The above example also indicates a gendered context within which prosthesis use takes place. The topic of gender in relation to prosthesis use has been largely overlooked in the research literature. The limited research on the issue of gender, amputation, and prosthesis use has examined depression following amputation. (Kashani et al. (19) found women were more likely than men to be depressed following an amputation, while several studies have found gender does not predict levels of psychosocial adjustment (20–22)).

It is important to recognize that culture and gender may have an influence in the experience of embodiment for prostheses users. Murray (23) has found that for male participants, the issue of gender and prosthesis use is located in discussions of gendered roles, such as the male breadwinner, and in descriptions of strength (24). Here males viewed prosthesis use as important in allowing them to continue providing financially for their family, and prostheses were valued for allowing or enabling strenuous activities. Such views are evident in, and typified by, the following interview extract:

“For me it was important that I could get back to work and sort the finances of the family. My wife had taken on a job that she had had before our son was born, and I wanted to have things back to normal as soon as possible. The [prosthetic] leg allowed me to do this, and I was soon back repairing the house (back on ladders), and putting in 12 hours per day of physically demanding work.” (23, p. 149).

In contrast to a male focus on the utilitarian functions provided by their prosthesis, many women indicated that their prostheses were central to maintaining their feminine identity, such as being able to continue wearing high heels, to go dancing, and so forth. However, other women emphasized the “ugliness” of their prostheses, and how they interfered with the establishment of sexual relationships (23,24). While masculinity is implicated in prosthesis use, as described above, for female prosthesis users, in particular, the gendered nature of prosthesis use was of personal significance. Female prosthesis users have been found to speak of the frustration they encounter in obtaining prosthetic limbs that are appropriately gendered (16). On occasion, some female prosthesis users have artificial limbs provided to them that are designed for male users. The affront to a person’s sense of femininity on such occasions had profound personal significance:

“I probably would not have retained some anger at a prosthetist who put men’s feet on my limbs if he had told me that only men’s feet were available at any point in time!” (23, p. 149).

However, such a distinction between male and female artificial limbs is not always clear or appropriate. Rather, for some female participants a prosthesis designed for use by males was sometimes more appropriate for their needs. As the following interview excerpt demonstrates, the prosthesis that had been designed for use by females was too small for the participant, who then had to use an alternative which was originally designed for a male:

Participant: This is a man’s hand. I used to have really long nails and everything beforehand, but you can’t really have long nails with that.

Interviewer: Why have you got a man’s hand?

Participant: Because the ladies hand, I looked at it and said it’s a tiddly that. It is, it’s too small. I mean, I’ve always done quite hefty work in my jobs, so I suppose

it’s given me quite muscular type hands. And this to me was more like my hand than what the other tiddly things were, you know.” (23, p. 150).

Some females perceive prosthesis use, particularly upper-limb prostheses, as not suitable for females. A lack of cosmesis and the view that women have more of a problem with wearing prostheses have been cited as reasons for nonuse:

“I know that having another [prosthetic] arm would make life much easier in many respects, but my reason for not using them has been largely cosmetic. It seems that women have more of a problem with wearing a hook than men (blame it on Peter Pan, if you will!) and I admit, I am one of them.” (23, p. 159).

Clothes emerge as important in female prosthesis users’ sense of femininity and self-identity. Clothes worn prior to limb loss and prosthesis use are therefore often still worn, even when this makes prosthesis use more difficult and threatens one’s health. This is evident in the following interview excerpt, where a participant talks of her determination to continue wearing high heels:

“I know when I first got my limb I was determined to lead quite a normal life. And before I ever had my leg amputated I used to wear high heels. And I wanted to be able to carry on wearing high heels, because it felt as though I was still being me. And there were lots of arguments at the time. These are 3½-inch heels. You won’t see anyone else with them. But that was me and that is what I wanted. There was lots of arguments, erm, as regards me getting that, because of pressure on my other leg. And with it being circulation problems, vascular disease, I also have a lot of problems with the other leg. But, even though I put strain on the other leg by wearing the heels, it makes me feel better.” (23, p. 151).

The gendered nature of prosthesis use then is generally more prominent for females. This is perhaps reflective of (Western) societies’ more pronounced emphasis on the appearance of females (25), which artificial limbs disrupt. For females, the ability to wear items of clothing that can be seen as quintessentially feminine is found to be important for their sense of self-identity.

The emphasis here on feminine clothing differs from the use of clothing as discussed by Kaiser and colleagues (26,27) in the management of appearances by persons with physical disabilities. Whereas Kaiser et al.’s research found that





FIGURE 9.2. An image of a man with a left arm amputation seated in a car and using the Boston Digital Arm System as used in promotional material by Liberating Technologies, Ltd. (From Liberating Technologies, Ltd., with permission.)

disabled persons attempted to appear as normal as possible through their clothing choices, using a variety of techniques to conceal or deflect attention away from their disabilities, here female prosthesis users often wanted to wear clothes that were important for their sense of identity, but did not necessary make it any easier to conceal a prosthesis. Male concerns about prosthesis use appeared more concerned with purely utilitarian functions provided by their prostheses, such as being able to continue driving a car. Interestingly, prosthesis company advertisements often depict male prosthesis users in cars, emphasizing the culturally valued link between men and driving (Figs. 9.2 and 9.3) (28). Thus, the cultural context of feminine attractiveness contrasts with masculine functionality, both of which play a part in a cultural and gendered embodiment of prostheses. The preceding discussion of gender and embodiment indicates that gendered identities are important in the embodied experience of prosthesis use, and that the use of artificial limbs is more likely when such use is able to support such gendered identities.

The affective responses that prosthesis users have to their bodies are in part constituted by the values, opinions, and behaviors of other people and wider society, and which are exerted within social interaction. Erving Goffman's (29) seminal work on stigma positions the body as a repository of meaning (discourses of body and embodiment), and highlights its role in social encounters as well

as stressing the importance of management (bodily performance) in social competence.

The management of bodily performance in social interaction tends to proceed, for most people, most of the time, in an unproblematic manner. However, Goffman argues that problems can occur when people's self-identity (how they view themselves) does not accord with their actual social identity (how other people see them). A



FIGURE 9.3. A prosthetic company advertisement featuring a couple in a car, as used in promotional material by Endolite/Chas A. Blatchford & Sons, Ltd. (From Endolite/Chas A. Blatchford & Sons, Ltd., with permission.)

person's self-identity is often premised on a wish to be seen as normal. In this regard, the problems of the disabled feature prominently in Goffman's work. For people with stigmas, such as amputations, problems can arise in social interactions with able-bodied persons that have particular and lasting damage for their self-identity.

As one example of the importance of culture and social reactions to prosthesis use, and amputation in particular, we can consider a study of a Cambodian population with a high number of people with amputations due to land-mine injuries (30). Amputation, French (30) argues, so alters the integrity of the body that both the person with amputation and the people he or she comes into contact with are affected. For example, the embodiment of able-bodied people simultaneously equips them with a sympathetic identification with the person with amputation, and a fearful repulsion that they too could become like them.

Of particular importance to French was the impact of so many amputations on one Cambodian population. This included questions of the effect that these amputations and people with amputations had on the wider population, how the population experienced the bodies of people with amputations, and how these bodies were "read." Therefore, the social experience and understanding of amputation in the population as a whole was the research focus.

Responses to these questions were found to be understood only with reference to the political, economic, historical, and religious milieu of the people and region. Initially, French had supposed that people with amputations would be seen as a reminder of the war that had raged there for so many years, but that they would receive a compassionate Buddhist response. What French found was that people with amputations did not provoke a general anxiety about the war, but rather a more specific anxiety about personal safety. Young males with amputations in particular had a reputation for violence and theft, and were avoided. They were looked down upon and were rarely treated compassionately. Individuals with amputations themselves felt abandoned and degraded by their families and society in general.

French described her study as phenomenological in that it was concerned with lived experience and its meanings. However, these meanings were

located within the intersubjective domain of social relations and cultural signs. The social nature of the life-world means that, while we experience as individuals, the "what" of experience is constituted through complex interwoven subjectivities.

Representations of prosthesis use in cultural vehicles, such as the media and advertising, provide further insights into how the meaning of prosthetic embodiment is socially and culturally constituted. The analysis by Lisa Herschbach (31) of prosthesis company advertisements for artificial limbs following the American Civil War identified a narrative pattern in this historical material, which sustained a "persistent dream of bodily revitalization" and in which text and images were used to emphasize prosthesis users as "embracing the robust pleasures and pursuits of civilian life, absolved of their injuries" (p. 31). While a similar systematic analysis of modern prosthetic literature is lacking, as noted earlier such advertisements often feature artificial limb users in culturally valued activities appropriate, for example, for their gender (28).

While the social world around us, along with the culture, can be seen to play a part in molding embodied experience for people with and without disabilities, it is important not to invest these with a determining role. For example, in a series of papers, Frank (32–34) has examined the culturally and socially embedded experience of embodiment for people with congenital limb deficiency. In contrast to Goffman's (29) theory that suggests that rejection by normals forces people with disabilities to conceal, and therefore minimize the negative impact of their physical difference, Frank's (34) informants used self-display as a method of self-empowerment. She argued that stigma was a factor in her participants' lives to which they had to adapt. However, Frank argued that not only does stigma not remain static over time, but that there is no final state of adjustment. Rather, Frank's participants adopted and developed a variety of strategies for dealing with stigma that were not all about concealing their disability. Importantly, Frank's informants emphasized that managing stigma was not the focal point of their lives.

Frank (32) provided a life history of Diane DeVries, a woman born without legs and with above-elbow stumps, in which she emphasized the normalcy of her participant's body for her.

Frank described this work as a collaborative effort between informant and researcher, with the aim of producing a holistic, qualitative account that would relate to theoretical issues, but that would also convey a sense of the personal experience of congenital disability. Within this paper Frank emphasized themes of cultural normalcy and orientation to independent living: these themes conveyed the normal cultural development of Diane's life in relation to her age, gender, and social background, which included initiation into sex, falling in love, and living with a partner. DeVries judged the prosthetics forced upon her at an early age as more stigmatizing than her unencumbered body. With her prostheses she felt she looked like "a little Frankie" (a Frankenstein monster), and felt more natural without them. The same informant formed the basis of a later paper by Frank (33), in which she wrote of how DeVries articulated intactness in her descriptions of her body. Although trained at an early age, and for a prolonged period (age 4 to 18), to use prostheses, DeVries always liked her "body to be completely free" (p. 208).

In a later paper, Frank (34) emphasizes themes of public visibility and personal display in the life stories of her informants, born with multiple limb deficiencies. These participants, Frank argued, demonstrate an attitude of activity against stigma, more than a reacting toward it. In this manner, Frank emphasizes the self-accepting attitudes that her informants had about their bodies despite their limb deficiencies. The rejection of prostheses by people born without limbs, Frank argued, can be seen as an adjustment to their embodied condition, where bodily competencies are better deployed without prostheses.

The body of work reviewed here highlights important aspects of the embodied experience of prosthesis use, and how the social and cultural worlds in which we live contribute to this experience. It is only with a full consideration of the phenomenology of using an artificial limb, and the personal, social, and cultural meanings that surround this practice, that the embodied experience of a prosthesis can be understood and fully inform the rehabilitative process. However, to achieve this, more work is needed to understand the diverse variety of meanings and experiences that surround prosthesis use, both by the person

with congenital limb absence or acquired limb loss and those able-bodied members of society who encounter prosthesis users.

## Future Developments

While the work referred to above emphasizes the need to consider personal and social meanings in order to understand the embodied experience of prosthesis use, such considerations need to be appropriately informed. For instance, the issue of gender was discussed earlier as an underexplored area with important implications for the individual's identity and experience of using an artificial limb. Another significant example of the relationship between identity and embodied experience is that of race and ethnicity. Gendered, racial, and ethnic identities are fashioned out of social relationships and culture, within which such identities are also situated. A full consideration of the embodied experience of prosthesis use requires attention to these issues.

The research on race and ethnicity in relation to amputation and prosthesis use tends to focus on the elevated risk to amputation found in ethnic minority groups. For instance, research in the U.S. has generally found that African Americans have a much higher risk of major lower extremity amputation than white patients (35). Similarly, Young et al. (36) have found that compared with diabetic patients without amputations, diabetic people with amputations were more likely to belong to a minority ethnic group. Dolezal et al. (37) have found nonuse of artificial limbs to be associated with being of African-American race. However, there is a paucity of research specifically on the experience of prosthesis use among racial and ethnic groups, or on the attitudes of able-bodied members of these groups toward prosthesis use. Vernon (38) argues that when researching and writing about disability "academics have either ignored or tagged on the experience of disabled Black and minority ethnic people" (p. 385). This tendency to subsume the experiences of ethnic minorities in research conducted with predominantly white sample groups may overlook important familial, religious, social, and cultural parameters of ethnic identity, which in turn modify the experience of disability.



As with gender, race can be expected to be an integral issue in prosthetic embodiment (23). For example, prosthetic cosmetic covers, which surround the working mechanisms of an artificial limb, need to be visually redolent of the color of the user's skin. While issues surrounding race do not currently appear in existing research material, there are companies that specialize in providing these cosmetic covers, which therefore indicates that race is an important consideration. Indeed, recently in the United Kingdom the national press reported on a black woman about to undergo amputation who was offered a pink rather than a black foot, and the distress which the offer caused (39). Until issues of race and ethnicity have been explored with respect to prosthesis use, it is not possible to explicate their role further here, aside from highlighting these issues as important areas of future research.

## Summary of Key Points

- People with amputations and congenital limb absence vary in the degree to which they feel their artificial limb is “part of” them. However, it is a recent recognition that many prosthesis users can achieve this experience with practiced use.
- The personal meanings that current and potential users of prostheses have toward artificial limbs influence their experience of prosthesis use.
- The social roles or identities that people have are important aspects of their embodied experience.
- The society and culture within which prosthesis use takes place influences able-bodied persons' perception and meanings of this activity, which impacts on the embodied experience of the prosthesis user.
- Further work is needed to examine gendered, racial, and ethnic identities and their relationship to the embodied experience of prosthesis use.

## Glossary

*Corporeal*: Relating to, or being characteristic of, the body or a part of the body.

*Culture*: An enduring way of life for a group of people, which incorporates acceptable and valued patterns of behaviors, beliefs, values, and symbols,

and which is transmitted from one generation to the next via a variety of social practices.

*Embodiment*: The way in which people experience their own body.

*Ethnicity*: The shared and distinct characteristics of a group of people, such as linguistic, national, racial, religious, or cultural heritage, but especially when such people belong to a national group by heritage or culture and reside outside its national boundaries.

*Gender*: Referring to activities, appearance, attributes, behaviors, and social roles that society considers acceptable or appropriate for men and women.

*Phenomenology*: The study of phenomena or things as they are perceived, to uncover the essential features of experiences and the essence of what is experienced.

*Race*: The shared genetically transmitted physical characteristics that distinguish a local geographic or global human population as a more or less distinct group, such as skin color.

*Stigma*: An attribute that is socially unacceptable and imbued with a sense of shame or disgrace.

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